

SPOTLIGHT Scholarship

SHOWCASE OF

FACULTY RESEARCH & CREATIVE ACTIVITY

OCTOBER 21, 2021



Lucas Administrative Center 830 | tel 859.572.5788

October 21, 2021

Greetings!

Welcome to Northern Kentucky University's third annual Spotlight on Scholarship! This is a wonderful opportunity for faculty and staff to share their research, scholarship and creative work with each other and the community. This event allows us to recognize, collectively, the importance and value of our contributions to the academy and beyond. We also are given the opportunity to network with our colleagues, which I encourage you to do today. As someone who is new to NKU, I am very excited to spend the day with you and hear about the scholarly work our faculty and staff are engaged in.

You will see that the submissions represent all of our colleges, and includes work that has been presented regionally, nationally and internationally. Today's presentations feature work by 26 NKU faculty and 2 NKU Staff. The work reflects our commitment to the teacher-scholar model and the active engagement of students in the process of our scholarship efforts. The core of our academic life is guided by the pursuit of knowledge in all its forms, and engaged teacher-scholars impact our students, our region, and beyond.

At the end of the presentations, I look forward to recognizing this research with the third annual Sol award (pronounced soul). Sol is the Norse goddess of enlightenment; she is the sun; and she is rebirth, wisdom, creation and enlightenment. It is believed that Sol was adapted by the Norse from other pagan religions throughout northern Germany and Scandinavia. It is not surprising that after long northern winters, the coming of light is a sign of spring, new beginnings, rebirth and renewed energy.

In this spirit, the NKU award for outstanding research, creativity and scholarship was named after this Norse deity; she embodies the spirit of a new and better tomorrow. The spirit of creativity and the search for knowledge are a constant force at NKU. Like the sun, they are ever present, ever burning, ever renewing, with inexhaustible energy. New this year - I will also present the Community Building award for the presenter who attracts the largest audience for their talk. Community is one of the hallmarks of NKU, I'm excited to see our community celebrate our presenters.

I am committed to supporting your scholarly and creative work, and I extend my congratulations for all of your achievements during the past year.

Sincerely,

Matt Cecil

Provost and Executive Vice President for Academic Affairs



Spotlight on Scholarship developed from the desire to celebrate and shine a light on the amazing work of our faculty and staff. This event gives us the opportunity to come together as a community to share some of the best scholarship our institution has to offer and help tell the story of NKU.

UNIVERSITY RESEARCH COUNCIL 2021-22

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TABLE OF CONTENTS

Program Schedule	. 02
Faculty Abstracts	. 04

PROGRAM SCHEDULE

8:45-9:00	Coffee and Networking
9:00-9:15	Welcome – President Ashish Vaidya
9:15-9:30	Joe Cobbs* – Associate Professor // Marketing, Sports Business & Construction Management Marius Truta* – Professor // Computer Science Seth Adjei* – Assistant Professor // Computer Science "Discerning the Sparks and Effects of In-Group Versus Out-Group Framing: The Know Rivalry Project"
9:30-9:45	Jonathan Cullick – Professor // English "Teaching to Kill a Mockingbird in the Post-Watchman Classroom"
9:45-10:00	Whittney H. Darnell – Assistant Professor // Communication "An Exploration of Instructors' Accommodation Discourse on the First Day of Class"
10:00-10:15	Jack Harrison – Professor // Chase College of Law "Is a Green Tie Enough? – Batson, Truth, and Lies in the Courtroom"
10:15-10:30	Music Interlude – Richard Van Dyke Milonga del Angel, by Astor Piazzolla Intermezzo in C-sharp Minor, Op. 117, No. 3, by Johannes Brahms Over the Rainbow by Harold Arlen (1905-1986) arranged by George Shearing
10:30-10:45	Break
10:45-11:00	Chris Curran – Director // Neuroscience, Biological Sciences "Implementing a Collaborative Framework to Enhance Brownfield Redevelopment and Historic Preservation in Northern Kentucky"
11:00-11:15	Julie Olberding* – Professor // Political Science, Criminal Justice & Organizational Leadership Megan Downing – Associate Professor // Political Science, Criminal Justice & Organizational Leadership ""Extreme" e-Student Philanthropy: Expanding Grantmaking into Fully Online Classes and Assessing Outcomes for Students as Learners, Community Members, and Social Activists"
11:15-11:30	Laura Sullivan – Associate Professor // W. Frank Steely Library "Department Chairs in the Crucible: Managing Faculty Conflict in the Age of Institutional Change"
11:30-11:45	James Walden – Professor // Computer Science "Election Security Issues"
11:45-12:00	David Brandt – Assistant Professor of Practice // Communication "Hierarchical and Role-Based Influencers of Perceived Organizational Listening Effectiveness"
12:00-1:00	Lunch – UC 375 (Ballroom) Matthew Albritton – Director // School of the Arts, Visual Arts "99 Masks: A Meditation on 2020, COVID-19, and the Politics of a Pandemic."

1:15-1:30	Ankur Chattapodhyay – Assistant Professor // Computer Science "From A Novel User-Centric Ethically Aligned Trustworthy AI Label to A COVID Infodemic Advisor Tool"
1:30-1:45	Michael Mannheimer – Professor // Chase College of Law "Fugitive Slaves and the Lost Decades of the Fourth Amendment"
1:45-2:00	Zeel Maheshwari – Assistant Professor // Physics, Geology & Engineering Technology "An Approach for Sustainable Development in Remote Rural Communities"
2:00-2:15	Ada Cenkci – Associate Professor // Political Science, Criminal Justice & Organizational Leadership "The Role of Inclusive Leadership and Procedural Justice on Work Engagement"
2:15-2:30	Break
2:30-2:45	Katherina Nikzad-Terhune* – Assistant Professor // Social Work Sara Conwell* – Advisor // ALPS Amy Danzo* – Director // ALPS Allyson Graf* – Assistant Professor // Psychological Science Suk-hee Kim* – Associate Professor // Social Work "Responding to an Aging Society and Generating Educational Opportunities through NKU's New Age-Friendly University Distinction"
2:45-3:00	Lynne Zajac – Associate Professor // Nursing Teresa Huber* – Assistant Professor // Nursing Karen O'Connell* – Assistant Professor // Nursing Adrianne Lane – Professor Emeritus // Nursing Denise Robinson – Regents Professor // Nursing "Immediacy in Accelerated Online Courses: Student Perceptions Shape Recommendations for Online Faculty"
3:00-3:15	Melissa Jones – Professor // Teacher Education "Building Inclusive Communities Through Peer Mentoring: A Tool for Change"
3:15-3:30	Ryan Salzman – Associate Professor // Political Science, Criminal Justice & Organizational Leadership "Pop Up Civics: Understanding the Political Potential of Placemaking"
3:30-3:45	Musical Interlude Corbett Trio // Dr. Holly Attar, Dr. Amy Gillingham Culligan and Dr. William Herzog Alexander Borodin, String Trio in G minor
3:45-4:00	Presentation of Spotlight on Scholarship "SOL" and Community Building Awards Provost, Matt Cecil
4:00-4:30	Cocktails and Networking Corbett Trio // Dr. Holly Attar, Dr. Amy Gillingham Culligan and Dr. William Herzog Alexander Borodin, String Trio in G minor
* presenters	

NKU
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ABSTRACTS

David Brandt – Assistant Professor of Practice // Communication

"Hierarchical and Role-Based Influencers of Perceived Organizational Listening Effectiveness"

Organizations increasingly acknowledge that listening and responding to the Voice of the Consumer (VoC) is a vital business process. To succeed, such a process must have strong support from senior-level executives, and it must include specific features/practices that are effectively implemented at lower levels of the organization.

Recently published research (Brandt, 2020) reveals that most organizations have not yet achieved a desired level of VoC process effectiveness: Most are better at capturing consumer feedback than they are at analyzing, disseminating, or utilizing it to improve consumer experiences.

Why?

One explanation may stem from hierarchical and role-based differences among individuals who participate in and evaluate the VoC process.

Senior executives typically are the sponsors of a VoC process, providing the human/capital resources required to support and sustain it. In contrast, day-to-day operation of the VoC process typically is delegated to middle managers. These managers view process effectiveness from a relatively closer, hands-on perspective, and they often have a clearer view of what is working and what is not.

If weaknesses in the current process do not make their way from middle managers to the "top of the house," senior executives may lack information required to support corrective action. Also, if middle managers who use consumer intelligence to make improvements are not getting what they need from consumer intelligence providers, anticipated results from investments made in a VoC process may not materialize. None of this bodes well for VoC process sustainability or viability.

This presentation will share new research findings revealing the critical areas in which (1) senior executives and middle managers, and (2) consumer intelligence providers and consumer intelligence users differ in their assessments of VoC process effectiveness. Implications for organizational communication theory and practice will be discussed, along with recommendations for improving alignment of senior executive and middle manager perspectives.

Ada Cenkci – Associate Professor // Political Science, Criminal Justice & Organizational Leadership

"The Role of Inclusive Leadership and Procedural Justice on Work Engagement"

This spotlight presentation would share practical insights from our research on work engagement. The research project explores the relationship between inclusive leadership and employee work engagement as well as the mediating effect of procedural justice on this relationship. An online, self-administered questionnaire was used to collect data. A total of 201 information technology (IT) professionals in Turkey participated in the study.

The outcomes suggest that inclusive leadership is positively related to procedural justice while procedural justice is positively associated with work engagement. In addition, procedural justice mediates the relationship between inclusive leadership and work engagement.

The outcomes underline the importance of inclusive leadership to effectively lead IT professionals. Organizational leaders can cultivate inclusive leadership by demonstrating openness, availability, and accessibility towards their employees and create work environments in which employees' ideas are valued. Additionally, for employee procedural justice perceptions, organizations need to ensure that their procedures and policies are transparent and fair in terms of how decisions are made. Moreover, organizations can offer training to their IT managers on inclusive leadership and procedural justice topics.

This study adds to the very scarce literature on inclusive leadership. Furthermore, this is the first study to explore the concept of inclusive leadership in the Turkish context. Moreover, the findings of this research can be beneficial for future theory development on inclusive leadership in cross-cultural contexts. In addition, Northern Kentucky University emphasizes the Inclusive Excellence framework. The findings of this study can also be used by the university in its efforts to create a climate that emphasizes inclusiveness and employee work engagement.

Keywords Leadership, Procedural justice, Work engagement, Inclusive leadership, Information technology professionals

Ankur Chattopadhyay – Assistant Professor // Computer Science

"From A Novel User-Centric Ethically Aligned Trustworthy Al Label to A COVID Infodemic Advisor Tool"

Existing literature shows that cyber-psychological issues among online users are on the rise, with mental health being the new cybersecurity attack surface, and COVID related misinformation, disinformation, and "fake news" being the corresponding attack vector amidst the ongoing pandemic. The threat of an online user being a victim to this is so significant that the World Health Organization calls this a COVID 'infodemic'. Psychological experts have termed this as a form of COVID psyber-security attack (COVID-PSA). Recently, there has been a few research and development (R&D) initiatives to address this current threat landscape of the COVID 'infodemic'. However, this research area is still a new, emerging one with a lot of prospective scope of work. In this novel R&D project, we have attempted to address this COVID-PSA threat by implementing a data analytics driven knowledge recommender, which is meant to be an adviser for users in regard to the credibility of online COVID information. We have designed and developed a unique web extension as this knowledge recommender's maiden proof-of-concept prototype. It can be plugged into a web browser as an add-on and can indicate whether the online information is real or fake on a COVID website that users visit. Our unique COVID infodemic adviser tool includes a textual data classifier, which is trained on COVID information related real and fake benchmark datasets and uses advanced natural language processing techniques to parse the online textual information from websites. Our tool is a timely technological intervention for providing users with valuable insights on trustworthiness of COVID websites, for safeguarding them against potential COVID-PSA, and for raising overall awareness of looming infodemic threats. This first of its kind tool, which we have built, can contribute to further innovation, and lead to future path breaking research directions plus intellectual property intended for societal benefits.

Joe Cobbs – Associate Professor // Marketing, Sports Business & Construction Management

Marius Truta – Professor // Computer Science

Seth Adjei – Assistant Professor // Computer Science

"Discerning the Sparks and Effects of In-Group Versus Out-Group Framing: The Know Rivalry Project"

The Know Rivalry (KR) Project is a perpetual student-faculty-practitioner collaboration with the PURPOSE to develop, organize, and comparatively analyze rivalry research across diverse domains for a diverse audience. Initially, we focused on the culturally prominent domain of American football, and we have since expanded our range of sports and geographic context. Recent data collection from cricket fans in India has enabled us to begin comparison of domestic and foreign rivalry phenomenon.

Our expected OUTCOMES are broad data collection, relevant and rigorous analysis, and wide dissemination of results via peer-reviewed journals, popular media, and the KR project website, KnowRivalry.com. These outcomes have CONTRIBUTED to our discipline by clearly defining rivalry as "conflict with a highly salient outgroup that poses acute threat to in-group identity and/or esteem" (Tyler & Cobbs, 2015; cited 97 times per Google Scholar), and discerning 10 cross-sectional elements that formulate perceptions of rivalry.

Working from these foundations, our findings IMPACT the greater good by suggesting empirically-based narratives that enhance the positive benefits of intergroup rivalry (e.g., group belongingness, attendance) and/or mitigate the negative outcomes often associated with rivalry (e.g., animosity). For instance, emphasizing the locational proximity of two groups/teams—instead of cultural differences—enhances perceptions of rivalry and thereby strengthens group loyalty but without resulting in outgroup prejudice and discrimination that arises when cultural differences are highlighted (Cobbs & Tyler, 2018).

The KR Project has IMPACTED NKU through the high-impact practice of student-faculty collaboration in interdisciplinary research, which can INSPIRE future scholarly collaborations. Furthermore, the KR Project has generated over 20 media features to date, including the New York Times and Wall Street Journal. Academically, the project has facilitated student coauthored journal articles (2), a book chapter, research conference presentations (4), and findings are regularly integrated into the curriculum of SPB 200, a Foundations of Knowledge (GenEd) course.

Jonathan Cullick - Professor // English

"Teaching to Kill a Mockingbird in the Post-Watchman Classroom"

Our project is about one of the most popular and beloved novels in the United States: To Kill a Mockingbird by Harper Lee. Published in 1960, it received the Pulitzer Prize, was made into an Academy Award winning film, and became a mainstay in middle school and high school classrooms.

Then, in 2015, HarperCollins announced the discovery of another manuscript by Harper Lee, Go Set a Watchman, which had been concealed in a safe deposit box for fifty years. Immediately, questions and a government investigation emerged into the author's mental capacity to consent to its publication.

Particularly unsettling to readers was new information about the hero of Mockingbird, the lawyer Atticus Finch. Memorably portrayed by Gregory Peck in the movie, Atticus defends a wrongly accused black man and protects him from a lynch mob. Now, in Watchman, he expresses racist views. The endearing child-protagonist of Mockingbird, "Scout," is now twenty-six-year-old Jean Louise, discovering that the father she admired is a past member of the KKK and current member of the White Citizens' Council.

The controversial Go Set a Watchman confronts teachers with a complicated portrait of the hero of Mockingbird. Our project addresses the problems that middle school and high school English teachers must resolve as they continue to include Harper Lee's classic novel in their classrooms.

We invited teachers and professors nationally to contribute essays to our book, Mockingbird Grows Up: Re-Reading Harper Lee (University of Tennessee Press, 2020). We explore the troubling provenance of Go Set a Watchman. We present new interpretations and teaching methods. We affirm the benefits of Mockingbird in the classroom, but we argue for including Watchman as a supplementary text. Ultimately, we argue that the publication of Watchman gives teachers an opportunity to offer students more nuanced understandings of our nation's racial history.

Chris Curran – Director // Neuroscience, Biological Sciences

"Implementing a Collaborative Framework to Enhance Brownfield Redevelopment and Historic Preservation in Northern Kentucky"

Brownfields are sites originally used for industrial or commercial purposes where contamination limits their redevelopment for economic or other community benefits. This project was funded by an Institute for Health Innovation Branch Award to implement a Collaborative Analysis Framework for brownfield redevelopment in Northern Kentucky. The framework was developed by risk assessment experts at the University of Cincinnati and Cardno ChemRisk who were collaborators on this project with NKU faculty and three undergraduate Environmental Science majors. The overall goals were to identify critical factors that support successful redevelopment and obstacles that inhibit redevelopment. Initial work focused on identifying a suitable site in Boone, Kenton or Campbell counties. NKU students conducted multiple database searches and worked with local, state and federal environmental agencies to map brownfield sites in Northern Kentucky and to catalog the contaminants at each site. In addition, the students interviewed key experts in brownfield redevelopment regarding success factors and obstacles. Ultimately, the historic Marianne Theater in Bellevue, KY was selected as the focus of the study. City leaders are actively seeking a developer to preserve the iconic ArtDeco façade, but the aging theater contains both asbestos and lead-based paint. Remediation of those health risks is essential to successful re-use, but adds considerable cost to the project. Therefore, the students redirected their efforts to focus more closely on successful redevelopment of historic theaters and similar buildings in small communities with limited economic resources. This resulted in a national survey of brownfield developers and products to promote the Marianne Theater redevelopment. These products included a GIS analysis of the Bellevue business district and a promotional video highlighting the artistic, historic, and economic value of the theater to the Bellevue community. NKU faculty Ryan Salzman (Political Science) and John Gibson (COI) contributed their expertise at key points in the project.

Whittney H. Darnell – Assistant Professor // Communication

"An Exploration of Instructors' Accommodation Discourse on the First Day of Class"

Globally, invisible disabilities are among the most commonly reported types of disabilities among college students. International data suggest that students with disabilities in higher education are often reluctant to disclose their disability status in order to access accommodations and academic support from their institutions. Few studies have examined institutional disclosure processes that contribute to students non-disclosure decisions. The first day of class is an opportune time for instructors to invite students to disclose their accommodation eligibility. Guided by the multiple goals theoretical framework, 30 first-day-of-class videos from a large, public university in the United States, were collected and analyzed. The findings suggest that when instructors talk about accommodations for students with disabilities on the first day of class, they largely prioritize the students' task goals (e.g. completing documentation and assignments) and often avoid discussing the unique relational and identity needs of students with invisible disabilities. The implications of these findings are discussed.

Jack Harrison - Professor // Chase College of Law

"Is a Green Tie Enough? – Batson, Truth, and Lies in the Courtroom"

Curtis Flowers was tried six times for the murder of four employees of a Mississippi furniture store. Flowers is black; three of the four victims were white. At the first four trials, the prosecutors used peremptory challenges to strike all qualified black prospective jurors. In the first three trials, Flowers was convicted and sentenced to death. These convictions were later reversed based on prosecutorial misconduct. Flowers' fourth and fifth trials ended in mistrials. In Flowers' sixth trial, prosecutors exercised six peremptory strikes, five against black prospective jurors. Again, he was convicted and sentenced to death. Ultimately, the United States Supreme Court reversed Flowers' conviction, concluding that the use of peremptory challenges by prosecutors showed clear discriminatory intent.

While peremptory challenges are deeply rooted in our nation's understanding of how an impartial jury is seated, peremptory challenges also present an opportunity for explicit and implicit bias to occur. Historically, attorneys could use peremptory challenges to strike persons from a jury for any reason, with no explanation being required. However, in Batson v. Kentucky, the Supreme Court recognized that significant constitutional questions exist where purposeful racial discrimination motivates the exercise of a peremptory strike in jury selection by prosecutors.

Studies have suggested a marked difference between the behavior and deliberations of all white juries when compared to diverse juries. My project initially focuses on the development of the peremptory challenge in English common law and in the United States. Then I examine the available research on the presence of implicit bias in the jury selection process, how that bias impacts the end result of trials, and the pioneering work done recently in Washington and Connecticut to address Batson shortcomings. Ultimately, I conclude that the only way to address implicit bias in the exercise of peremptory strikes is to eliminate the practice.

Melissa Jones - Professor // Teacher Education

"Building Inclusive Communities Through Peer Mentoring: A Tool for Change"

This research study unearthed the personal and professional impact on peer mentors who volunteer to support students with an intellectual disability in an inclusive postsecondary program. Three hundred forty-four written reflections provided by 85 peer mentors over a tenyear period were analyzed using Grounded Theory. Results focus on four categories, including a) Professional Learning, b) Intrapersonal Learning, c) Broadening Friendship Networks, and d) Challenging [dis]ability. The fourth category, Challenging [dis]ability, demonstrated an impact of the peer mentoring experience which extended beyond personal and professional benefits gained by peer mentors, with implications for altering societal views of individuals with disabilities, recognizing abilities over disabilities.

Zeel Maheshwari – Assistant Professor // Physics, Geology & Engineering Technology

"An Approach for Sustainable Development in Remote Rural Communities"

Energy availability is a severe problem in majority of the communities (particularly in rural areas) around the world. According to International Energy Agency (IEA), it is projected that 660 million people may not have access to electricity in 2030 owing to rapid population growth and economic difficulties due COVID-19. Moreover, around 2.6 billion people lack access to clean cooking facilities, relying instead on solid biomass, kerosene or coal as their primary cooking fuel. According to World Health Organization (WHO), 785 million people lack access to basic drinking water. By 2025, half of the world's population will be living in water-stressed areas. For the development and growth of the rural areas, basic needs such as water, cooking and electricity must be fulfilled in a sustainable manner. Earlier attempts at solving these problems such as: Grid Extension, Electricity Home Systems (EHS), Microgrids, and IEEE Smart Village have focused only on providing electricity. Therefore the main question is "How do we meet the ever-increasing demand for reliable energy (not just electricity) without harming the environment or people?"

Smart Integrated Renewable Energy System (SIRES) was proposed to provide basic needs using local renewable energy resources. Renewable energy resources such as biogas, hydro, solar and wind are locally available in rural areas and can be harnessed in an efficient manner to fulfill these basic requirements in remote rural area. Introduction of SIRES in rural communities brings about improvements in living environment and community welfare by supplying the basic needs such as biogas for cooking, water for domestic and irrigation purposes and electrical energy for lighting, communication, cold storage, educational and small- scale industrial purposes. Applying Artificial Intelligence (AI) techniques for a selected study area makes SIRES more advantageous when compared to existing approaches.

Keywords: Sustainable Development, Renewable Energy, Artificial Intelligence

Michael Mannheimer - Professor // Chase College of Law

"Fugitive Slaves and the Lost Decades of the Fourth Amendment"

The Fourth Amendment protects "[t]he right of the people to be secure . . . from unreasonable searches and seizures." Scholarship on the Amendment typically recognizes the importance of the thirty years leading up to its adoption (1761-91), and then jumps to the first Supreme Court case interpreting the Amendment in 1878. The dearth of Fourth Amendment cases in the Supreme Court during the antebellum period is unsurprising because the Amendment applied only to the federal government, which was then far smaller than it is today, until 1868. However, it would be a mistake to think that the Amendment was moribund during this period. One area where the federal government was active was in supporting the wicked institution of slavery by facilitating, through federal statutes enacted in 1793 and 1850, the recapture of enslaved persons escaping into free States. Although the Supreme Court never addressed the Fourth Amendment implications of seizures of alleged fugitive enslaved persons, Fourth Amendment arguments were commonly made during the antebellum period, not only by litigators, but by state legislators and private citizens in free States in support of "personal liberty laws," designed to protect free persons of color from being kidnapped into slavery as fugitive slaves. These arguments, and the few state courts that addressed them, support an understanding of the Fourth Amendment grounded in federalism, or "states rights": that the Amendment was understood as preserving for the States the authority to regulate searches and seizures within their respective borders. When the issue did reach the Supreme Court, a coalition of southern proslavery Justices and northern ultra-nationalist Justices ignored the Fourth Amendment argument, upheld the Fugitive Slave Act of 1793, and struck down the state personal liberty laws. It was then that this federalism-based understanding of the Fourth Amendment was irrevocably lost.

Julie Olberding - Professor // Political Science, Criminal Justice & Organizational Leadership **Megan Downing** - Associate Professor // Political Science, Criminal Justice & Organizational Leadership

""Extreme" e-Student Philanthropy: Expanding Grantmaking into Fully Online Classes and Assessing Outcomes for Students as Learners, Community Members, and Social Activists"

Student philanthropy -- also known as "experiential philanthropy" -- is an active teaching strategy that enables students to lead a charitable grantmaking process and, in doing so, engage in the curriculum and learn about community needs and nonprofit organizations. About 20 years ago, professors began using the "learning by giving" approach in face-to-face classes. Since that time, some have expanded and innovated. This study is one of the first to examine electronic student philanthropy, or "e-student philanthropy." Specifically, it looks at "extreme" e-student philanthropy in classes in which both the instruction and the philanthropy experience are fully online (Waldner, McGorry, & Widener, 2012). In doing so, this study applies and develops a conceptual framework that recognizes students as: 1) active learners with potential cognitive outcomes, 2) community members with potential civic outcomes, and 3) social activists with potential consciousness outcomes (Britt, 2012). It analyzes studentbased outcomes of e-student philanthropy in three undergraduate classes and one graduate class. Survey results indicate the philanthropy experience had positive outcomes for online students on various measures, including interest in the course, learning and applying course material, awareness of community needs, awareness of nonprofit organizations, responsibility to help others in need, and belief they can make a difference in the world. These findings are particularly timely and important since many colleges and universities, including NKU, have made large-scale transitions to online education in response to the COVID-19 global pandemic. Ryan Salzman – Associate Professor // Political Science, Criminal Justice & Organizational Leadership

"Pop Up Civics: Understanding the Political Potential of Placemaking"

Placemaking is a set of activities that seeks to shape and activate public space. In the 21st century, placemaking has become a popular strategy among urban planners and community developers. Scholarship on placemaking has consistently focused on the economic benefits of placemaking with only occasional mention of the political realities associated with that behavior. This project addresses that deficit by taking a deep dive into the political potential of placemaking in the United States today. Using traditional political behaviors such as protest and participation in associations, a full account of the political potential of placemaking is presented. Dozens of interviews, a survey, and material review provide a thorough account of how placemaking can be understood as political phenomena. The results are clear: placemaking has tremendous political potential in the context of the modern American democratic system. This work is important as concerns about the deterioration of American democracy have gone unchallenged. That lack of response is due in part to a failure to think outside the box of traditional political behavior. This project focuses on the distinctly 21st century behavior of placemaking to respond to these 21st century democratic concerns.

Laura Sullivan – Associate Professor // Library Informatics

"Department Chairs in the Crucible: Managing Faculty Conflict in the Age of Institutional Change"

This dissertation research spotlights the critical and challenging role of the department chair. The higher education department chair is a unique leadership position in American higher education, with the role becoming more important in the changing higher education landscape. With change comes conflict, especially with faculty, yet chairs are not prepared to manage faculty conflict or prepared for the position. Nine department chairs were interviewed and a focus group of six chairs was conducted in this phenomenological action research study to understand how chairs manage faculty conflict at Northern Kentucky University. Effectiveness in managing faculty conflict, preparation for managing it, and position preparation were also explored, using Howard Gmelch's three spheres of leadership development and systems theory as the frameworks guiding the study. Results indicated the significance of communication in managing conflict, understanding conflict style and department conflict culture, and the need for intentional leadership preparation. Based on the findings, recommendations are made to improve chair preparation as they transition to this vital leadership position.

Katherina Terhune - Assistant Professor // Social Work
Sara Conwell – Advisor // ALPS
Amy Danzo - Director // ALPS
Allyson Graf - Assistant Professor // Psychological Science
Suk-hee Kim - Associate Professor // Social Work

"Responding to an Aging Society and Generating Educational Opportunities through NKU's New Age-Friendly University Distinction"

The number of adults in the U.S. ages 65 and older is projected to nearly double from 52 million in 2018 to 95 million by 2060 (U.S. Census Bureau, 2019). Furthermore, adult students 25 and older make up 35% of our nation's collegiate population, which will continue to grow as we reach 2024. This unprecedented population growth has brought forth opportunities and challenges that will impact the economy and various societal infrastructures. Age-friendly is a term used to define environments that support healthy and active aging in ways that motivate and inspire individuals to live their fullest lives at all ages, in part by addressing systemic barriers that segregate and exclude on the basis of age (World Health Organization, 2018). The Age-Friendly University (AFU) principles emerged as a result of the efforts of an international, interdisciplinary team that aimed to identify and highlight the distinct contributions higher education institutions can make in response to the needs and preferences of an aging population. The ten AFU principles have been adopted globally by over 60 institutions. In 2020, Northern Kentucky University endorsed the AFU principles and became the first agefriendly University in the state of Kentucky. The AFU principles provide NKU with a valuable guiding framework for distinguishing and evaluating how it can continue to shape agefriendly programs and practices, as well as identify gaps and opportunities for growth. This presentation aims to: (1) discuss findings from a research study involving NKU faculty and students (n=280) that highlight experience, interest, preparedness, and barriers in regard to addressing a rapidly aging society; (2) emphasize the multitude of new opportunities for university wide collaboration under the new NKU Age-Friendly University distinction; and (3) discuss the effectiveness of having a specific campus office dedicated to the academic and collegiate needs of adult learners.

James Walden - Professor // Computer Science

"Election Security Issues"

Problems with mechanical voting machines in the 2000 presidential election led to the introduction of computerized voting machines across the United States. While the tradeoff between mechanical reliability problems for computer reliability issues left the nation no worse off, the use of electronic voting machines and other computerized election systems exposes elections to a host of new cybersecurity vulnerabilities.

As election systems are computers running Microsoft Windows, they are vulnerable to the same attacks, such as malicious software (malware). Ransomware is a type of malware used to extort money from both local governments and private companies. In October 2020, a ransomware attack disabled the voter signature database in Hall County, GA. Ransomware demonstrates the ability to make undetectable changes to computer systems, revealed only when the extortionist demands the ransom. Researchers have created malware that infects voting machines to flip votes from one candidate to another. In the absence of humanly readable paper ballots, this type of change is undetectable.

We will examine the security of election process from registration through the tabulation of votes from an attacker's point of view. Attackers focus on attacks that maximize their impact on elections while minimizing both the risk of being caught and the resources needed to carry out the attack. This means that attackers prefer Internet-based attacks to in-person voter fraud, which adds one vote with the high chance of getting caught and the high cost of employing a person. We saw this preference with Russian attacks on voter registration systems in 2018. Based on the attacker's perspective, we will discuss the defenses we need to secure election systems. Finally, we'll examine security issues that were important during the 2020 election cycle.

Lynne Zajac – Associate Professor // Nursing
Teresa Huber – Assistant Professor // Nursing
Karen O'Connell – Assistant Professor // Nursing
Adrianne Lane – Professor Emeritus // Nursing
Denise Robinson – Regents Professor // Nursing

"Immediacy in Accelerated Online Courses: Student Perceptions Shape Recommendations for Online Faculty"

Application of PAC to study dynamics of molecules has been limited somewhat by incomplete theory for calculation of PAC spectra in the presence of certain time-varying interactions. During my sabbatical leave in spring of 2021, I worked on advancing theory needed for calculation of PAC spectra influenced by rotational diffusion processes. I will report on progress made using the traditional stochastic-based approach of Winkler and using a new approach based on the Floquet formalism. The former will allow researchers to compare results from PAC experiments to measurements using other techniques. The latter hopefully will provide greater insight into the interplay of inertial rotation and collisions in dynamical processes of large molecules.

